

Amendments To The Drawings:

None.

Remarks

This Amendment is in response to the Office Action dated **December 29, 2006**.

Claim Rejection 35 USC 112

In response to the Examiner's rejections of claims 11, 12, and 13 under USC 112, the Applicant has deleted the claims without prejudice. A clarifying amendment has been made to claim 14 as shown. Claims 42 and 43 have also been amended. No new subject matter has been added and it is submitted that the claims, as amended overcome the Examiner's objections under 35 USC 112.

Claim Rejections Under 35 USC 103

The Examiner has newly rejected claim 1 as being obvious in light of Grass in combination with Paterson, after having previously noted that the elements of claim 1, in combination would be allowable if written in independent form.

The Applicant has carefully considered the Examiner's fresh rejection, but respectfully submits that the claims, as submitted, are indeed patentable over the cited references as the Examiner had first thought.

This invention is directed towards a new type of lift drive that is particularly suited to use in stair lifts. Thus, the present invention solves to a number of previously unsolved design constraints as expressed in the limitations of the claims. In this type of lift drive, lifting mechanism is part of the overall device being lifted. Being able to reduce the work required to operate the lift device is therefore desirable in a virtuous circle type of way – less weight requires a smaller motor which weighs less which reduces friction which required less power which permits a smaller motor and so on. In this manner the Applicant's invention provides a light

weight lift drive that can be incorporated into a light weight kit having a light weight track. The light weight kit permits the Applicant's device to be used in a new market, such as the DIY (Do It Yourself) market, for the installation of an assisted living device such as a household stair climber.

The elements of the Applicant's claimed invention which lead to this light weight kit are found in claim 1. The technical difficulty the Applicant faced is that plastic, although a light weight material, is inherently flexible. Flexible load bearing elements which distort as the elements deform under load can change the load distribution on the elements. Enough concentration of the load through such distortion can lead to overloading and component failure. The problem is therefore how to use light weight materials in a manner that is strong enough to resist distortion under loads which would otherwise compromise both safety and smooth functioning of the device.

The issue therefore is to provide a light weight plastic structure, that is sufficiently strong and rigid so as to adequately bear the loads without undue deformation and without compromising the light weight design. The Applicant's invention uses a plurality of strategies in combination, each of which contributes to the strength and functioning of the light weight assembly. As claimed, the invention is directed to a lift drive comprising among other things:

a plastic spiral drive element having an axis of rotation;

a single plastic rack having a base and a plurality of teeth extending from the base wherein each tooth has a thrust surface;

wherein, the rack is comprised of a plurality of sections, each of said sections having a plastic molded body having a base, and

the base having void with a reinforcing element, the element being a metal reinforcing element to provide dimensional stability to said plastic molded body under load.

Turning now to Grass DE Publication No. 3504854, this reference discloses a load carrying means which includes a worm-gear drive which propels a load vertically up and down guide rails by means of a tooth system. The teeth are arranged parallel to the guide rails rectilinearly one above the other. No description is provided in the abstract that the worm-gear or the teeth can be made of plastic. It appears to teach an all metal assembly which is neither light weight nor flexible under loads – there does not appear to be any concern with deformation under load.

In the drawings, and in particular Figure 2, the Examiner points to elements 13, 14 as being, in the broadest reasonable interpretation, reinforcing elements. The Applicant respectfully disagrees. The elements 13 and 14 appear to be portions of a panel section adjacent to a channel into which the track sections having the teeth are mounted. It is not even clear if the elements 13 and 14 support any of the load of the track, as the side view fails to show any attachment between the track and the support structure which eventually is connected to the elements 13, 14. The track sections appear to the Applicant to form a self-supporting column that is trapped within the channel and independently supported at the ground level. In this case, the sections 13 and 14 (or the so-called reinforcing elements) would not even be load bearing. As they are not load bearing it is not reasonable to call them “reinforcing elements” of the track as the Examiner has done.

The track elements as taught by this prior patent do not have plastic bodies with molded voids as claimed. Furthermore, they do not have metal reinforcing elements located within the voids, as claimed. Lastly, there is no teaching whatsoever that the elements 13, 14 provide dimensional stability to the track sections under load, since an all metal assembly would be inherently dimensionally stable.

Recognizing this deficiency in the teachings of Grass, the Examiner refers to Paterson, as showing a worm-gear wheel and a reduction gearing member made from plastic. The Applicant submits that no combination of Paterson and Grass teaches a track with a plastic rack having a base and a plurality of teeth extending from the base, let alone a molded body track section with a metal reinforcing element. Even so, the Examiner's objection seems to be that the plastic elements of Paterson can some how be used in the mechanical structure of Grass.

The Applicant respectfully submits that the only combination that is available from the cited references is to use the plastic worm-gear of Paterson on the metal teeth of Grass, but this is clearly an incompatible combination. Anyone skilled in the art would recognize that the plastic worm would be quickly destroyed by a metal rack under load. No combination of Grass and Paterson teaches the claimed invention. There is simply no need in the steel track of Grass to be concerned about dimensional stability of the teeth on the body. In any event, even if one could argue that the sections of Grass 13 and 14 were load bearing, they would not be located within a plastic body track section as claimed in the Applicant's invention. Even mounting plastic track sections in a channel that in turn is supported by side panels would not provide enough dimensional stability of the load bearing teeth to achieve the claimed invention of the present application. The Applicant respectfully submits that the cited art simply does not support the objection as characterized by the Examiner.

Recognizing the deficiencies of the combination of Grass and Paterson, the Examiner states that the use of a plastic rack, of the reinforcing element of Grass, and the use of a void, which the Examiner calls a recess or flush mount, all would have been obvious to a person skilled in the art.

The Applicant respectfully disagrees. The Applicant submits that even though plastic is a well known, worm gears are well known and toothed tracks are well known, the Examiner has been unable to locate a single prior art reference which teaches a plastic toothed track. Plastic, until now, was not believed suitable for use in a toothed load bearing track. The Applicant was the first to recognize and solve the problem of dimensional stability when using a plastic element in the load bearing capacity in a track for a spiral lift device. The Applicant has specifically claimed a reinforcing element, of the type which provides dimensional stability to the track sections being incorporated into the plastic body of the track sections. Grass is not concerned with dimensional stability. The portions of the Grass structure the Examiner points to are not even likely load bearing. The claimed void of the Applicant's design permits the reinforcing element to bear the lifted load to provide the dimensional stability required. There is simply no way to view the cited references, in combination with the common knowledge as rendering the Applicant's invention as being obvious. If it was obvious as the Examiner contests, then the Applicant submits that the Examiner would be able to find references to plastic tracks in the art.

The Applicant therefore respectfully traverses the Examiner's rejection and submits that the invention as claimed in claim 1 is not obvious in light of the art and the common knowledge as the Examiner contends.

In light of the allowability of claim 1, the claims dependent from claim 1 are also believed allowable.

With respect to claims 42 and 43, the Applicant has clarified the claim to make it clear that it is the track sections which are being referenced to and in this context the Applicant can find no support whatsoever for the Examiner's contention that Grass "discloses the

reinforcing element is separated from either end of the section by another section whereby the section can be axially preloaded”, as the Examiner contends in paragraph 44 of the Office Action.

In Grass the so-called reinforcing sections are not even part of the track sections, which appear to be free floating in a channel, separate and apart from sections 13, 14. The Applicant respectfully requests the Examiner reconsider and withdraw the objection as being ill founded in light of the claim clarification.

The Applicant further submits that claim 44, of similar scope to claim 1 is allowable for similar reasons to claim 1.

In summary the Applicant submits that the invention as claimed is patentable over the cited art combination and the common knowledge. Reconsideration is respectfully requested, and an early allowance is earnestly solicited.

Respectfully submitted,

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